

SYNCHRONIZATION METHOD FOR A PROCESSING
COMMUNICATION SATELLITE

ABSTRACT OF THE DISCLOSURE

5 The present invention provides a highly accurate
synchronization method for a satellite communication system
(100). The system maintains a downlink symbol counter at an
earth terminal and determines a downlink symbol count
representative of the time of arrival of a burst transmitted
10 from the earth terminal to a satellite (106, 206). The earth
terminal adjusts the downlink symbol counter to correspond to
the downlink symbol count (136, 220) upon arrival of a
predetermined reference point in a downlink frame. A timing
error may initially be determined by launching an entry order
15 wire from the earth terminal to the satellite (116). The
timing error may be transmitted to the earth terminal using a
correction code which indicates the transmission is early,
late, absent, or no change is required (134, 218). The
terminal may make additional periodic timing adjustments based
20 on the length of the propagation path between the earth
terminal and the satellite (108, 208). The earth terminal may
then precisely time the transmission of bursts from the earth
terminal to the satellite (130, 214). The length of the
propagation path and the timing error may be stored in the
25 earth terminal so that the earth terminal may reenter the
system without undertaking multiple commissioning processes.